

I Claim:

1. An RF amplifier, comprising:  
an RF input;  
an RF power sensor to sense the power level of the RF input;  
an RF power level detector connected to said power sensor;  
a transmit gain control circuit connected to said level detector;  
a transmit chain/path and receive circuit; and  
a plurality transmit/Receive switches for time division duplex operation connected to said transmit chain and receive circuit.
2. The RF amplifier of claim 1 where the receive circuit includes a bandpass filter and a low noise op amplifier disposed between said transmit/receive switches.
3. The RF amplifier of claim 2 where there are two transmit/receive switches.
4. An amplifier feedback circuit comprising;  
an RF energy input means for inputting RF energy into the amplifier feedback circuit;  
means for detection of said RF energy including the power level thereof;  
means for comparing said RF power level with an established threshold;  
means for controlling output gain of said RF power level;  
means for switching between transmitting and receiving power said switch  
means being operatively connected in a loop with said means for controlling output gain and a filter.

5. A method for maintaining substantially constant output from an RF amplifier independent of input power levels where the amplifier operates according to the equation

$$P_{out} = C \cdot K \cdot 10^{VR} \cdot 10^{-B \cdot \text{Log}(P_{in})} \cdot P_{in} = C \cdot K \cdot 10^{VR+B}$$

where  $B$  and  $C$  are constants,  $K$  is the constant amplifier gain,  $VR$  is a fixed reference voltage,  $P_{in}$  is the RF input power level, and  $P_{out}$  is the output power.

6. The method of maintaining substantially constant output power of an amplifier including an amplifier feedback circuit according to claim 4, comprising the step of operating the amplifier feedback circuit according to the equation

$$P_{out} = C \cdot K \cdot 10^{VR} \cdot 10^{-B \cdot \text{Log}(P_{in})} \cdot P_{in} = C \cdot K \cdot 10^{VR+B}$$

where  $B$  and  $C$  are constants,  $K$  is the constant amplifier gain,  $VR$  is a fixed reference voltage,  $P_{in}$  is the RF input power level, and  $P_{out}$  is the output power.